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MEMORANDUM REPORT

No. F-MR-1-RE
GS-AAF-Wright Field No. 57

ATI No. 13894

THE ZWB CLASSIFICATION AND ITS RELATION TO GERMAN AERONAUTICAL ACTIVITIES

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AIR MATERIEL COMMAND
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THE RAE CLASSIFICATION AND ITS RELATION TO GERMAN AERONAUTICAL ACTIVITIES

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INTRODUCTION

ZWB is the abbreviation for Zentrale fuer Wissenschaftliches Berichtwesen der Luftfahrtforschung des Generalluftzeugmeister at Berlin-Adlershof (Scientific information center for aeronautical research of the Director General of German Air Materiel).

The ZWB was responsible for collecting, classifying, cataloging, and disseminating current technical literature in aeronautical and allied fields in Germany. It was sponsored and financed by the government as a source of information for industrial, scientific, and military agencies. The manuscripts received from the authors, with the abstracts, frequently provided by the authors themselves, were reviewed by a staff of technically competent personnel and classified as to their respective scientific or technical category.

This information was contained in a card-index system, the shortcomings of which were overcome by assigning to each individual firm or enterprise, a competent specialist whose function consisted in selecting, and providing from the available information, that part which was of greatest importance and consequence to the work of his organization. The titles and abstracts of new material, of both foreign and domestic origin, were periodically disseminated in a publication, Literaturschau (Review of Literature).

BIOGRAPHICAL NOTE

Gustav E. Strohmeier, after completing his high school course at Schondorf-Ammersee, Bavaria, continued his studies at the Institute of Technology, Munich, and later at the University of Jena, where he received his Ph.D. degree in 1935.

He became Assistant in the Physical Institute at the University of Jena, following which he was associated with the "Generalsekretariat" of the Lilienthal Society for Aeronautical Research, and was in charge of the work of the Fachgruppen (individual research groups). His work here included the calling of scientific and technical conferences, as well as the devising of methods for effective cooperation.

He was subsequently assigned to the position of Secretary General of the Lilienthal Society (LG), where his activities included liaison between academic and research institutes and the ZWB. (ZWB as publishing center was later merged with the LG.)

To assure complete coordination between this institution and the Academy of Aviation Research (DAL), he was appointed Secretary General of the DAL. Here he was responsible for synchronizing the activities of the DAL with the entire German scientific and industrial research program, and for the closest liaison of these activities with the technical and tactical aims of the German Air Force. He is now employed in the Library Section, Air Documents Division, Intelligence (T-2) AMC, Wright Field, Dayton, Ohio.

THE ZWB CLASSIFICATION AND ITS RELATION TO GERMAN AERONAUTICAL ACTIVITIES

"The explanation of the ZWB classification system of the numbering breakdown and how the numbers were assigned" is a simple one. This is evident from an examination of the "Gruppeneinteilung der Luftfahrt - Literaturschau fuer Luftfahrtforschung und Luftfahrttechnik" (Classification Scheme of the Review of Aeronautical Research and Development), and its "Stichwoerterverzeichnis" (Subject Index).

The alphabetical identification begins with the capitals A, C, E, the letters between each of these having been purposely omitted for later expansion. It would have been possible to follow a numerical procedure, omitting all odd or all even numbers. One could debate endlessly an infallible division of subjects, without arriving at a better subject arrangement. For instance, some users will consider it more nearly correct if "C5 - Messung optischer Groessen" (Optical measurements) were classified as A5 - "Optik" (Optics). Others will make proposals of numerous similar revisions. However, this is not a vital issue when the introduction of a classification scheme is under consideration.

Important alone is the fact that a classification is developed and consistently adhered to, so that all its users become accustomed to it as a matter of habit. Changes occur only in the form of necessary additions. They can be recognized by comparing the older editions, which were enclosed with an earlier report, with the more recent editions of the ZWB classification. There is nothing in the way, if one should choose to expand the subject index to all the important terms which are not already contained in the classification scheme. It would then acquire the function which we attribute to "subject headings".

As a technical and scientific information center, the ZWB was expected to give full and up-to-date information on the literature covering special fields. This function was to be carried out by a comparatively limited, but well-trained staff of specialists who formerly had been productive as engineers, in research or in industry. Therefore, no additional system in the form of a greatly detailed subdivision of subject was indicated.

The "Literaturschau" (review of current literature), unclassified, as well as classified sections, including the index of top-secret cards (the latter of which were never distributed) furnishes currently the supply for the ZWB master card file. It was arranged according to the accepted subject classification, as well as by author and research institute.

An attempt is made in the following paragraphs to stress a few facts which have not been emphasized in my earlier reports on this subject.

The centralized collection and dissemination of aeronautical literature, in the form of the already existing and currently supplemented pool of information, was one of the means by which aeronautical research and development aimed to increase the effectiveness of the general scientific and industrial output.

Literature, and its dissemination, was one of the tools for effective cooperation. Other mediums are personal connections, as well as conferences and conventions. All these should, of necessity, supplement each other. In Germany, frequent conferences in all active fields of aviation were systematically encouraged, and were well attended.

The most important, and perhaps the largest portion, of the aeronautical literature was secret. Since this classified literature required special methods of administration, it necessitated the creation of a central agency which would be responsible for the printing, distribution and shipping of such reports. The related operation of codifying this material by a central agency furnished a starting point for some sort of subject classification. It developed without any deeper analysis, being rather the result of a natural growth. The ZWB had received the manuscripts from the various research centers, issued them in printed form, and distributed the reports according to authorized distribution lists. The supply of reports, classified and unclassified, such as FB- and UM-reports of the ZWB, were arranged chronologically under the name of the respective research institute.

The rapid increase of technical literature necessitated the creation of the "Literaturschau" (review of technical literature), which reported unclassified and classified material separately. Furthermore, for the issuance of the "Literaturschau", a more detailed subject classification had become indispensable. This exemplified in the "Gruppeneinteilung" (classification into groups). To attain a high degree of completeness in the collection of aeronautical literature, the ZWB attempted to include, also, information on reports other than those already received and distributed by the ZWB.

This increased the number of cards in the "Literaturschau". They included, in addition to the abstracts - which were usually written by the author of the report - the respective subject classification number, and the number within the series to which it belonged. Also listed was the name of the agency from which the respective report could be obtained. A catalog or file composed of cards from the "Literaturschau" included, therefore, all reports issued by research institutes, all reports of the L.G. and the D.A.L., and later, also, most reports from research records of the industry. However, not included were important reports from the various "Entwicklungsgruppen" (development groups of the Ministry of War and War Production), in cases in which these reports were not made in connection with the L.G. (Let it again be stated that the largest portion of these later reports are also lacking in the ADD library.)

The recipients of the "Literaturschau" were free to arrange the ZWB catalog cards to suit their own preference. In my earlier report on "German Methods in Cataloging Technical Information and ZWB Works", 24 January 1946, it was shown that it was the responsibility of the individual institutes or firms, as well as in their own interest, to devise effective means for the distribution of the ZWB cards and reports, and to route them to the individual specialists within their own organisation. ZWB also had ways and means at their disposal to devise and propagate methods by which each report could immediately reach all those individuals whose activity demanded prompt acquaintance with the respective literature.

However, the most effective functioning of a center of aeronautical literature like ZWB, and the best classification system, would be worthless if a report were to be buried in the well-guarded safe of a firm. The problem and intention of the ZWB was to currently inform scientists and engineers of all new developments in their field, without any unnecessary delay or waste of time for them. The ZWB, however, was not expected to decide who should be supplied with what report. On the other hand, it could not be expected of the individual scientist that he should screen from the wealth of new material all the reports important to him. This fact, as well as practical experience, led by necessity to the development of a card catalog, which is superior to a catalog in book form. Moreover, the "Literaturschau" facilitated bibliographical service to requesting agencies; it was only necessary to lift from the card file the desired group of cards, thus dispensing with any further clerical work.

A classification system should be as simple and natural as possible. Simple describes a system which is easily understood; a system is natural if it conforms to customary and generally accepted practices. It is a general practice to differentiate, for instance, between mathematics, chemistry, physics, etc.; or on a smaller scale, as with regard to metals, between iron, light metals, rare metals, etc. However, it is not natural to differentiate between the concepts merely because they begin with a different letter in the alphabet. A subject breakdown and an index, therefore, are in sharp contrast to each other. We may take as an example the table of contents in the beginning of a book, and its detailed index at the end; the latter would be unsuitable for introducing the reader to the contents of the book. Likewise, the "Gruppeneinteilung" (ZWB classification scheme), divides larger or smaller branches of knowledge into organic and logical subgroups. The index merely serves to locate the group into which a term falls.

In my report on "The Work and Organisation of the Air Documents Division", 21 February 1947, I included a diagram illustrating the primary significance of the natural grouping of branches of knowledge, and the secondary importance of the index (similar to subject headings). Every variety of decimal classification (Dewey decimal) lends itself to a natural treatment. But any type of subject heading never can be more than a sort of index, because, from the view point of subject arrangements, it is based solely on the arbitrary sequence of letters of the alphabet.

A division into natural groups remains permanent, since new material can be incorporated without disarranging the groups. The alphabetical arrangement of subjects, with its corresponding uninterrupted chain of numbers, has a rigid character. Therefore, the interpolation of new concepts in this already exhausted numbering system presents problems, as shown in the following:

EXAMPLE

Subject Heading		
1		
:		
:		A
:		:
763		:
		:
763.1	(M 1 2)	M
764	(M 2 1)	
	(M 4)	M 1
764.1		M 1 1
764.2	(No 1)	M 3
:		M 5
:		
:		
900		0
		0 1
		:
		:
		2 5 4 3

A term designating a new technical field is to be incorporated. Because of its initial letter, it is forced into a subordinated position between 764.1 and 764.2. But in a decimal system we have at least three different possibilities for arranging it in its proper position and subject relationship.

The principal problem is reiterated:

Why and for what purpose a classification?

A classification should serve as a means of making any new knowledge, and even the smallest step in a development, quickly available to all interested specialists. It should, therefore, help to eliminate unnecessary duplication of effort due to ignorance of similar work being done elsewhere. It also should enable every student and productive specialist to locate quickly all available knowledge in his field, and to put it to immediate practical use for the advancement of his work.

The answer to the above question, particularly in its relation to German aeronautical activities and organisational facilities under discussion, may be stated as follows:

The most significant method for the exchange of ideas and the dissemination of current information was the systematically encouraged practice of conferences between smaller and larger groups. The comparatively small distances between the various Aeronautical Centers in Germany - 400 miles was the farthest between the most distant agencies - simplified cooperation and collaboration. The chief outcome of such a conference was a most up-to-date report on the respective problems, which was immediately made available to research and industry (Reports from: L.G., D.A.L., E.H.K., BHF, etc.). Beyond this, individual research reports were encouraged. The most important sponsor for this type of contribution was the ZWB. It was aided by the RLM, L.G., various research institutes, and later also by industry, as well as by other departments of the Armed Forces. The attempt was also made to adjust the method of reporting to the mentality of engineers and scientists. In other words, ZWB was not satisfied merely to wait for requests for reports, but intended to supply users with all new material in the most acceptable tactful manner.

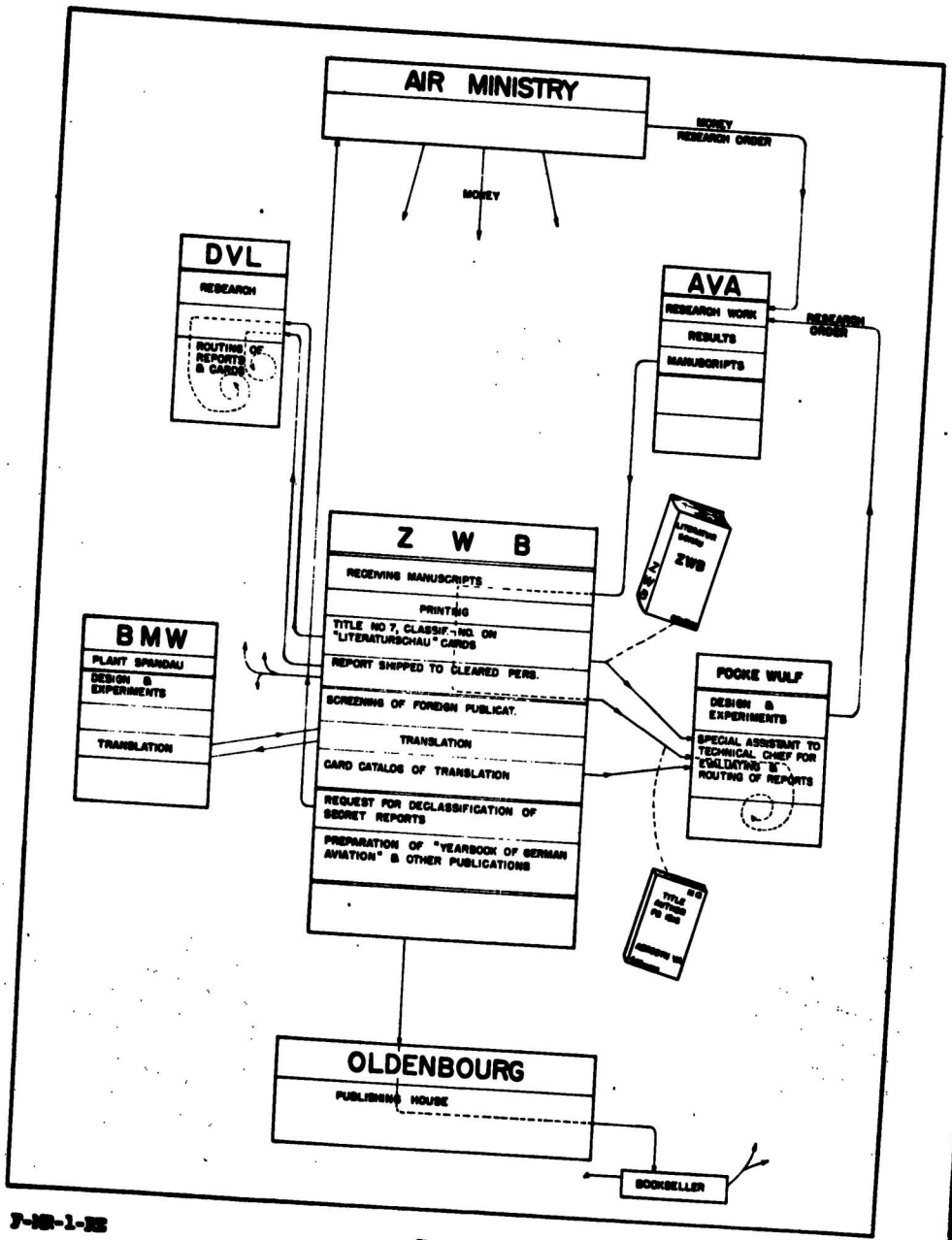
But since ZWB was not in a position to satisfy thousands of individual needs, the selection of the reports by a designated specialist in each individual firm and institute was recommended. This method proved to be the most effective and practical. It was not dependent upon the functioning of a very detailed classification system, but relied chiefly upon the skill and experience of the key personnel. They were in a position to follow the ever changing developments better than was possible by any ever-so-complicated classification system.

The other extreme possibility, under which one could even hope to collect, distribute and utilize technical literature, is a comprehensive and multifaceted system of classification, which must attempt to systematize all activities in such a way that it can be handled by entirely untrained personnel in machine-like fashion. This, however, depends upon the assumption that it is possible to devise a system of numbers and formulas which will permit the designation of a definite combination of numbers as a means of identification for every concept, and every subject, from the smallest to the largest, and all combinations thereof.

The organisation of the material of German aeronautical literature, consequently, has grown out of the soil of practical experience and necessity. The various agencies of German aeronautical activity were quick to realise that much more would be gained than lost from a generous and willing exchange of all pertinent and up-to-date information. The strongest inhibition of full cooperation between all branches of aeronautical activity was thus eliminated.

The circumstances in this respect were less fortunate in the German Army and Navy. Between the three main branches of the armed forces in Germany, the technical-scientific cooperation was, indeed, so poor that it eventually assumed catastrophic proportions. The unification of these agencies was later attempted by the Reichsminister fuer Ruestung und Kriegsproduktion (Ministry for Armament and War Production), but never developed beyond its initial stage.. In the field of organisation of technical literature, the establishment of the "Archiv fuer Forschung und Technik" (Archive for Research and Technique) was a practical beginning of effective cooperation.

The following sketch indicates the connection of the ZWB with other agencies of the German Aviation. The AVA and DVL are examples for research institutes while the BMW and Focke-Wulf designate in this chart industrial establishments. The functions attributed to these agencies and the flow of reports (indicated by green lines) are likewise only examples, and do not constitute a complete picture of these organisations.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ABSTRACT:

As a technical and scientific information center, the ZWB provided a centralized collection and up-to-date dissemination of aeronautical literature. Since ZWB was not in a position to satisfy thousands of individual needs, the selection of the reports by a designated specialist in each individual firm was recommended. This proved most effective and practical as it did not have to depend on the functioning of a very detailed classification system; however, the supplementary system which was used is explained. A sketch indicates the connection of ZEB with other German aviation agencies.

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